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APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
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EXAMINER

ART UNIT	PAPER NUMBER
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18

DATE MAILED:

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

☒ Responsive to communication(s) filed on 10-10-97

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-38 and 40-47 is/are pending in the application.

Of the above, claim(s) 14-18, 21, and 22 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-13, 19, 20, 23-38, and 40-47 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All _____ Some* _____ None _____ of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) _____

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of Reference Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s) _____

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

-- SEE OFFICE ACTION ON THE FOLLOWING PAGES --

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Claims 1-38 and 40-47 are pending. As a result of an election of species requirement, claims 14-18, 21, and 22 are withdrawn, and claims 1-13, 19, 20, 23-38, and 40-47 are treated herein to the extent that the agent is a carbohydrate which does not contain peptide or protein moieties.

Claims 1-12, 26-38, and 44-47 are again rejected, as set forth in the Office action of 04-14-98, under 35 U.S.C. 112, first paragraph, because, in accordance with the reasoning of *In re Hyatt* (218 USPQ 195 (CAFC 1983)), the instant claims cover every conceivable means for achieving the stated purpose(s).

Applicant's arguments filed 10-14-98 have been fully considered but they are not persuasive. Applicant argues that there are only a finite number of agents which have the functional properties recited in the claims, and that these are described in the specification. This argument is not convincing because although the Examiner recognizes that claims are to be read in light of the teachings in the specification, it is error to read limitations into the claims which are included only in the specification. The claim language is the measure of the invention, and it has been well established that critical limitations found in the specification but not in the claims are

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not read into the claims. See *In re Winkhaus*, 527 F.2d 637, 188 USPQ 129 (CCPA 1975).

Claims 13, 25, and 41 are again rejected, as set forth in the Office action of 04-14-98, under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Applicant's arguments filed 10-14-98 regarding claim 13 have been fully considered but they are not persuasive. Claim 13 remains unclear as to the intended meanings of "a portion of said P-selectin" and of "a portion of said ligand of P-selectin". Applicant argues that the term "portion" should be given its ordinary meaning, which is "a part of a whole". This argument is not persuasive because the instant context concerns molecules. It is not possible to divide a molecule into pieces which have physical existence. Bond breaking certainly cannot be done arbitrarily, and when it is chemically possible, formation of new bonds must ordinarily occur in order to provide a physically isolable moiety. Thus the metes and bounds of the claim are not clear.

Applicant's arguments filed 10-14-98 regarding claim 25 have been fully considered but they are not persuasive. Claim 25 is unclear as to the identity of the intended agent, specifically

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insofar as how it is to be "derived from" snake venom or a plant extract. Merely stating that the intended agent is to be "derived from" snake venom or a plant extract fails to set forth clearly what the intended agent is. Because essentially any arbitrary agent can be "derived from" snake venom or a plant extract given appropriate chemical conditions and reagents, this limitation fails to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

As to claim 41, Applicant states that the Examiner failed to provide a reason for the indefiniteness rejection. This is not the case. Because claim 41 depends from claim 13 and includes all the limitations thereof, claim 41 is properly rejectable for the reasons set forth explicitly with regard to claim 13.

Claims 1-13, 19, 20, 23-38, and 40-47 are again rejected, as set forth in the Office action of 04-14-98, under 35 U.S.C. § 103 as being unpatentable over KOGAN *et al.* (A), RAO *et al.* (B), or SEEKAMP *et al.* (K), in view of ROSS (AF), further in view of JOHNSON-TIDEY *et al.* (K1).

Applicant's arguments filed 10-14-98 have been fully considered but they are not persuasive.

It is Applicant's position that the prior art does not suggest inhibition of interaction both between P-selectin and a

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ligand thereof, and between E-selectin and a ligand thereof. This argument is not convincing because it is well known in the art that although ligand specificities exist among selectins, to a very great extent ligands for one selectin will also be ligands for another. This assertion is borne out by the primary references KOGAN, RAO, and SEEKAMP.

Applicant further argues that the additive effect of Exhibit K is surprising and unexpected. The Examiner does not agree. While a synergistic effect might be unexpected, an additive effect is what would reasonable be expected based on the prior art of record.

Applicant argues that based on JOHNSON-TIDEY, it is not clear whether atherosclerosis is a cause or an effect of P-selectin. This argument is not convincing. The JOHNSON-TIDEY passage cited by Applicant on page 7 of the response refers to "[t]he competence of P-selectin and ICAM-1 to induce leukocyte traffic in chronic inflammation". Atherosclerosis is a form of chronic inflammation, and here, JOHNSON-TIDEY clearly identifies P-selectin as a cause thereof.

Applicant characterizes the JOHNSON-TIDEY statement regarding "variable and mostly low levels of E-selectin" in the arterial endothelium over plaques as a teaching away from the instant invention. The Examiner does not agree. This teaching may reasonably be interpreted to mean that P-selectin plays a

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more important role than E-selectin in the system studied, but it does not indicate that E-selectin is present in a negligible amount, or that its presence should be ignored. In this regard it should also be noted that ROSS (see the first full paragraph on page 805) indicates that athero-ELAM (an E-selectin) is an adhesive cell-surface glycoprotein which increases adherence and migration of monocytes and T-lymphocytes into the subendothelial space.

Claims 1-12, 19, 20, 26-38, and 40-47 are rejected, as set forth in the Office action of 04-14-98, under 35 U.S.C. § 103 as being unpatentable over ROHRER *et al.* (L) in view of DE-AMBROSI (C), further in view of ROSS (AF), further in view of JOHNSON-TIDEY *et al.* (K1).

Applicant's arguments filed 10-14-98 have been fully considered but they are not persuasive. Applicant does not arguments with regard to this rejection in addition to those addressed above, expect to urge that neither ROHRER nor DE-AMBROSI teaches the method as claimed. This argument is not convincing because the Examiner did not allege that either of these references taught the invention as claimed. The rejection was one of obviousness, not anticipation.

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Claims 1-13, 19, 20, 23-38, and 40-47 are rejected under 35 U.S.C. § 103 as being unpatentable over FURIE et al. (AB1) in view of ROSEN et al. (K2).

Applicant claims a method of treating or preventing atherosclerosis in a mammal comprising administration of an agent which inhibits both binding of P-selectin to a ligand and binding of E-selectin to a ligand. In accordance with the restriction requirement, the agent is a carbohydrate which does not contain peptide or protein moieties. The inhibitory agent may be a portion of P-selectin or a ligand thereof, including sialyl-Lewis x, sialyl-Lewis a, carbohydrates containing 2,6-linked sialic acid, and their analogs.

FURIE teaches that atherosclerosis can be treated or inhibited by administering an inhibitor of PADGEM-mediated adhesion. It is noted that PADGEM is P-selectin. See the paragraph bridging pages 21-22, the second full paragraph on page 22, and claim 16. FURIE does not explicitly state that the inhibitors described therein inhibit both binding of P-selectin to a ligand and binding of E-selectin to a ligand.

ROSEN teaches that E- and P-selectin share a common recognition motif. See the first paragraph on page 667.

It would have been obvious for a person of ordinary skill in the art at the time of the invention to provide a method of treating or preventing atherosclerosis in a mammal comprising

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administration of an agent which inhibits both binding of P-selectin to a ligand and binding of E-selectin to a ligand as claimed. An ordinarily skilled worker would have been motivated to do so because FURIE had taught that could be treated or inhibited by administering a P-selectin inhibitor, and ROSEN had provided a reasonable expectation that P-selectin inhibitors would also act to inhibit E-selectin.

No claim is allowed.

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 10-14-98 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing

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date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Papers relating to this application may be submitted to Technology Center 1600 by facsimile transmission. The number of the fax machine for official papers in Technology Center 1600 is (703) 308-4556. Any document submitted by facsimile transmission will be considered an official communication unless the cover sheet clearly indicates that it is an informal communication.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Kathleen Kahler Fonda, at telephone number (703) 308-1620. Examiner Fonda can generally be reached from Tuesday through Friday, as well as on alternate Mondays, between 7:30 a.m. and 5:00 p.m. If the Examiner cannot be reached, questions may be addressed to Supervisory Patent Examiner Marian Knode at (703) 308-4311. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 1600 receptionist whose telephone number is (703) 308-1235.


Kathleen Kahler Fonda, Ph.D.
Primary Examiner
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